

Att'y Ref. No. 003-064

U.S. App. No.: 10/616,295

REMARKS

Favorable reconsideration, reexamination, and allowance of the present patent application are respectfully requested in view of the foregoing amendments and the following remarks.

Information Disclosure Statement (IDS)

Applicant acknowledges receipt of two form 1449s with the Office Action, from IDSs that Applicant filed on 24 October 2003 and 20 September 2004. Applicant notes that the Search Report listed on the September 20th IDS was not considered, and that the IDS filed on 8 December 2004 has not been considered at all. The undersigned has reviewed the Image File Wrapper (IFW) for this application, and has confirmed that both the aforementioned Search Report and the entire December 8th IDS are in the IFW. Applicant therefore respectfully submits that the December 8th IDS and the citation of the Search Report in the September 20th IDS fully complied with 37 C.F.R. §§ 1.97, 1.98, and therefore respectfully requests consideration of all of the documents cited therein, and return to Applicant of a copy of the fully-Examiner-initialed PTO-1449s.

Rejection under 35 U.S.C. § 102

In the Office Action, beginning at page 2, Claims 1-6 were rejected under 35 U.S.C. § 102, as reciting subject matters that allegedly are anticipated by U.S. Patent No. 5,044,559 to Russell et al. ("Russell"). Applicant respectfully requests reconsideration of this rejection.

This application describes exemplary devices and methods embodying principles of the present invention. As detailed throughout the specification and drawing figures, an atomizer device can produce a gas-liquid mixture useful in a turbine. A swirling annular flow of the liquid can produce an intensive mixture of gas and liquid. When discharged, the swirling annular flow generates a hollow conical spray with a central zone of reduced pressure, into which the gas is introduced via, e.g., a central pipe. A surrounding annular channel is provided which introduces the liquid, and includes means for swirling the liquid by introducing the swirling liquid tangentially into the nozzle chamber. According to a preferred embodiment, the mixture that is

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generated is introduced into a further nozzle for compression of the gaseous component.

As described in the application:

In a nozzle member 20, the water 15 is conducted to the annular nozzle chamber 18 surrounding the air feed duct 16 by means of water feed ducts 17 running tangentially of the central air feed 16. The nozzle chamber is tapered toward the annular nozzle aperture 19. Water 15 is forwarded through the water feed ducts 17 to the nozzle chamber 18 by means of the pump 1. Because of the tangential introduction of the water into the nozzle chamber 18, a swirled flow is formed which is further accelerated in the tapering cross section toward the nozzle outlet aperture 19. On leaving the atomizer device 2, a spray 21 of hollow conical form arises which forms a reduced pressure zone 22 in the region which it encloses. Air 13 is sucked in via the air feed and entrained by this reduced pressure zone 22.

Claim 1 relates to an atomizer device having a combination of elements including, *inter alia*, a nozzle member having an at least substantially central pipe, a rotationally symmetrical nozzle chamber surrounding the pipe, a nozzle aperture, a liquid feed having means for producing a swirled liquid flow in the nozzle chamber, wherein the nozzle aperture coaxially encloses the pipe, and a liquid feed that opens tangentially into a nozzle chamber.

Claim 4 relates to a method for the production of a liquid-gas mixture by an atomizer device, the method including a combination of steps including, *inter alia*, causing a swirled liquid flow to emerge from a nozzle aperture of the atomizer device to produce a swirling hollow conical spray expanding in a flow direction, and to produce a reduced pressure zone within the spray, causing the gaseous medium to enter the reduced pressure zone via a central feed, and introducing the swirled liquid flow in the nozzle chamber through at least one liquid feed opening tangentially into the nozzle chamber.

The prior art, including *Russell*, fails to identically disclose or describe a device or method as recited in the combinations of the pending claims.

Russell describes an atomizer which, according to *Russell*, is useful for producing a dispersed fuel. A nozzle 132 includes three channels, including a central inner channel 112 for primary air, an outer annular channel 126 for secondary air, and an intermediate annular channel

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120 for a liquid fuel, so that three streams (air, fuel, air) are discharged out of the nozzle. Swirl vanes 36, 138 are provided adjacent to the outlet to swirl the liquid prior to exiting the nozzle, and therefore the liquid exits with a longitudinal velocity component to which is added a swirl component. *Russell* devotes little attention in the patent to the swirl vanes, characterizing them as "swirl vanes . . . as in the prior art", and includes no other significant discussion of swirling the flow produced by the nozzle. Therefore, not only does *Russell* fail to disclose or describe a device as recited in the pending claims, including in their combinations a liquid feed that opens tangentially into a nozzle chamber (Claim 1) and introducing the swirled liquid flow in the nozzle chamber through at least one liquid feed opening tangentially into the nozzle chamber (Claim 4), but *Russell* also fails to identify that the prior swirl vanes incorporated into his device are inadequate for certain applications.

For at least the foregoing reasons, Applicant respectfully submits that the subject matters of Claims 1 and 3-5 are not anticipated by *Russell*, are therefore not unpatentable under 35 U.S.C. § 102, and therefore respectfully requests withdrawal of the rejection thereof under 35 U.S.C. § 102.

Conclusion

Applicant respectfully submits that the present patent application is in condition for allowance. An early indication of the allowability of this patent application is therefore respectfully solicited.

If Mr. Hwu believes that a telephone conference with the undersigned would expedite passage of this patent application to issue, he is invited to call the undersigned at the number below.


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It is not believed that extensions of time are required, beyond those that may otherwise be provided for in accompanying documents. If, however, additional extensions of time are necessary to prevent abandonment of this application, then such extensions of time are hereby petitioned under 37 C.F.R. § 1.136(a), and the Commissioner is hereby authorized to charge fees necessitated by this paper, and to credit all refunds and overpayments, to our Deposit Account 50-2821.

Respectfully submitted,

By: 
David J. Kenealy
Registration No. 40,411

U.S. P.T.O. Customer Number 36844
Cermak & Kenealy LLP
515 E. Braddock Rd., Suite B
Alexandria, Virginia 22314

703.778.6610 (v)
703.652.5101 (f)

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